

Applicant's invention for the Examiner, and not for distinguishing over the prior art or for statutory requirements directed to patentability. No new matter has been added.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached pages are captioned "Version with markings to show changes made".

Claims 1-2, 4, 8-9, 12-13 and 15-16 are rejected under 35 U.S.C. §102(b) as being unpatentable over Furukawa.

Claims 3 and 5 are rejected under 35 U.S.C. §103(a) as being unpatentable over Furukawa.

Claims 17-19 are rejected under 35 U.S.C. §103(a) as being unpatentable over Furukawa in view of Robertson, Jr. et al. (U.S. Patent No. 5,392,193) (hereinafter "Robertson").

These rejections are respectfully traversed in view of the following discussion.

## I. THE CLAIMED INVENTION

Applicant's invention, as disclosed and claimed by independent claim 1 (and substantially similarly by independent claims 2, 4, and 8), is directed to a fan motor which is mounted on a surface of an electronic component to be cooled. The fan motor is mounted to a thermally dissipating surface and includes an attaching plate with leg portions to mount the motor portion to the thermally dissipating surface. The thermally dissipating surface has recessed portions capable of accommodating the leg portion. The invention was discussed in detail in the Amendments filed April 11, 2001 and December 26, 2000.

A feature of the present invention is a thermally dissipating surface (e.g., cooling plate 50) with a recessed portion 55 having a depth at least as large as a thickness of a leg portion 125. An additional feature of the invention is that a thickness of the thermally dissipating surface (e.g., cooling plate 50) is equal to or greater than a combined thickness of a leg portion 125 of the attaching plate 120 and a recessed portion 55 of the thermally dissipating surface. An exemplary configuration of the recessed portion 55 having a depth at least as large as a thickness of a leg portion 125 and a combined thickness of a leg portion 125 and a

recessed portion 55 being at least equal to a thickness of a thermally dissipating surface (e.g., cooling plate 50) is shown in Figs. 2-3 of the application.

With such features, the thickness of the fan-motor attaching member is not added to the thickness of the fan motor and thus it is possible to provide a relatively "thin", low profile fan motor for use in cooling an electronic component (e.g., see page 7, lines 14-20; page 11, lines 14-24; page 12, lines 1-5; and page 13, lines 6-18 of the present application).

The conventional systems, such as those discussed below and in the Related Art section of the present application, do not teach or suggest the fan motor mounted to a thermally dissipating surface and mounted on the surface of an electronic component to be cooled. Further, there is no teaching or suggestion of the thickness of the thermally dissipating surface being equal to or greater than a combined thickness of a leg portion of the attaching plate and a recessed portion of the thermally dissipating surface.

Indeed, none of the references, alone or in combination, provides such features.

## II. THE REJECTION BASED UPON FURUKAWA

Applicant respectfully notes that while the Examiner is attempting to equate Furukawa with the present invention, Furukawa neither teaches nor suggests the inventive structure in which a fan motor is mounted on a thermally dissipating surface which is then mounted to an electronic component to be cooled.

Indeed, the present invention is distinguished from Furukawa not only functionally (e.g., in Furukawa for an air conditioning system, whereas in the present invention, for an electronic component to be cooled) but also structurally (e.g., in Furukawa for the mounting of the motor onto the casing, whereas in the present invention, a fan motor is mounted on a surface of an electronic component).

Specifically, in complete functional contrast to the present invention, Furukawa only discloses a blower for a conventional air conditioner (e.g., not an electronic component to be cooled). Also, in complete contrast structurally to the present invention, the blower of Furukawa includes "...a main body having a fan accommodated within the casing..." (e.g., see Furukawa, column 1, lines 50-51). Thus, Furukawa only discloses mounting the motor into



the casing. In contrast, in the claimed invention the structure is such that a fan motor is mounted on a surface of an electronic component to be cooled.

In addition to the above and in further contrast to the invention, Furukawa merely discloses that a *“main body 13 of the blower comprises a motor 14 and a fan 15...[t]he motor 14 is disposed to penetrate through the through hole 2 of the casing 1 with its rear half projected to the outside, and carries an annular fitting flange member 10 fitted and rigidly secured on its outer peripheral surface”* (e.g., see Furukawa, column 3, lines 26-32). In Furukawa, there is no disclosure that the annular fitting flange member 10 attached to the motor 14 is a thermally dissipating surface. Further, Furukawa nowhere teaches or suggests that a casing 1 is a thermally dissipating surface. Thus, Furukawa is not teaching an attaching plate which fixes a motor to a thermally dissipating surface, a thermally dissipating surface with a hole portion, or that an attaching portion attached to the motor has a leg portion for attaching the motor to the thermally dissipating surface.

Additionally, Applicant respectfully directs the Examiner's attention to Fig. 3 of the present invention and to Figs. 3-4 of Furukawa. Even assuming (arguendo) that Furukawa's fitting flange member 10 and casing 1 correspond to the attaching plate 120 and cooling plate 50 (e.g., thermally dissipating surface) of the present invention, respectively, Furukawa clearly is not teaching or suggesting a thickness of the casing 1 is at least equal to a combined thickness of the engaging recess 8 and the second engaging protuberance 11.

Instead, the thickness of the casing is far less than the combined thicknesses of the engaging recess 8 and the second engaging protuberance 11. Thus, the structure of Furukawa neither allows or provides the advantages of the present invention of a relatively “thin”, low profile fan motor for use in cooling an electronic component

Further, in Furukawa an overall thickness is increased even more because the second engaging protuberance 11 fits into a groove formed by peripheral edge portion 4 and first engaging protuberance 6. Thus, while not drawn to any indicated scale, Fig. 4 of Furukawa appears to indicate a thickness at an attaching point of the fitting flange member 10 and the casing 1 which is approximately three times the thickness of the casing 1.

Hence, turning to the clear language of claim 1 (and substantially similarly in independent claims 2, 4, and 8) there is no teaching or suggestion of “[a] fan motor, which is

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mounted on a surface of an electronic component to be cooled, said fan motor comprising:

*a thermally dissipating surface to be mounted to an electronic component;*

*a motor attached to said thermally dissipating surface; and*

*an attaching plate having a leg portion in a peripheral portion thereof for fixing said motor to said thermally dissipating surface,*

*wherein said thermally dissipating surface has a hole portion at least as large as said attaching plate, and a recessed portion that is formed on an attaching surface side of said thermally dissipating surface to said electronic component and that accommodates at least said leg portion of said attaching plate therein,*

*wherein said recessed portion has a depth at least as large as a thickness of said leg portion, and*

*wherein a thickness of said thermally dissipating surface is at least equal to a combined thickness of said leg portion and said recessed portion*” (emphasis Applicant’s).

For the reasons stated above, the claimed invention is fully patentable over the cited references.

Further, dependent claims 9, 12-13, and 15-16 when combined with their respective independent claims define additional novel and non-obvious features.

Further, regarding the § 103(a) rejections, claims 3, 5, and 17-19 when combined with independent claims 1, 4 and 8 define additional novel and non-obvious features.

Further, the other prior art of record has been reviewed, but it too even in combination with Furukawa and Robertson fails to teach or suggest the claimed invention.

### **III. FORMAL MATTERS AND CONCLUSION**

In view of the foregoing, Applicant submits that claims 1-5, 8-10, and 12-19, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed

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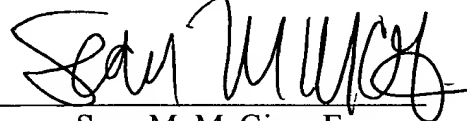
below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Date:

10/3/01

Respectfully Submitted,



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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE CLAIMS:**

**Please cancel claim 11 without prejudice or disclaimer.**

**The claims have been amended as follows:**

1. (Four Times Amended) A fan motor, which is mounted on a surface of an electronic component to be cooled, said fan motor comprising:  
a thermally dissipating surface to be mounted to an electronic component;  
a motor attached to said thermally dissipating surface; and  
an attaching plate having a leg portion in a peripheral portion thereof for fixing said motor to said thermally dissipating surface,  
wherein said thermally dissipating surface has a hole portion at least as large as said attaching plate, and a recessed portion that is formed on an attaching surface side of said thermally dissipating surface to said electronic component and that accommodates at least said leg portion of said attaching plate therein,  
wherein said recessed portion has a depth at least as large as a thickness of said leg portion, and  
wherein a thickness of said thermally dissipating surface is at least equal to a combined thickness of said leg portion and said recessed portion.

2. (Four Times Amended) A method of assembling a fan motor, which is mounted on a surface of an electronic component to be cooled, including a thermally dissipating surface to be mounted to an electronic component, a motor attached to said thermally dissipating surface, and an attaching plate having a leg portion in a peripheral portion thereof for fixing said motor to said thermally dissipating surface, wherein said thermally dissipating surface has a hole portion at least as large as said attaching plate, and a recessed portion that is formed on an attaching surface side of said thermally dissipating surface to said electronic component and that accommodates at least said leg portion of said attaching plate therein[.], said method comprising:

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10 passing said attaching plate through said hole portion;  
11 rotating the attaching plate through said hole portion;  
12 rotating the attaching plate so that said leg portion is accommodated in said recessed  
13 portion, said recessed portion being provided such that said recessed portion has a depth at  
14 least as large as a thickness of said leg portion; and  
15 fixing said leg portion to said thermally dissipating surface from said attaching  
16 surface side,  
17 wherein a thickness of said thermally dissipating surface is at least equal to a  
18 combined thickness of said leg portion and said recessed portion.

1 4. (Four Times Amended) A fan motor, which is mounted on a surface of an electronic  
2 component to be cooled, wherein a recessed portion capable of accommodating an attaching  
3 plate of a motor is provided in a thermally dissipating surface of a heat sink on a side thereof  
4 which is to be mounted on an electronic component, and said attaching plate is fixed from an  
5 attaching surface side of said thermally dissipating surface to the electronic component in a  
6 state that said attaching plate is accommodated in said recessed portion,  
7 wherein said recessed portion has a depth at least as large as a thickness of said  
8 attaching plate portion being accommodated, and  
9 wherein a thickness of said thermally dissipating surface is at least equal to a  
10 combined thickness of said leg portion and said recessed portion.

1 8. (Three Times Amended) A structure for mounting a first plate member associated with a  
2 motor portion of a fan motor, which is mounted on a surface of an electronic component to be  
3 cooled, onto a second plate member having a first side and a second side opposite from said  
4 first side, said structure comprising:  
5 an opening portion formed through said second plate member;  
6 at least one recessed portion provided in said first side of said second plate member  
7 and located outwardly with respect to said opening portion; and  
8 at least one leg portion provided to said first plate member, and received by said  
9 recessed portion so that said motor portion is at least partially located in said second side,

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- 10 wherein said recessed portion has a depth at least as large as a thickness of said leg  
11 portion, and  
12 wherein a thickness of said thermally dissipating surface is at least equal to a  
13 combined thickness of said leg portion and said recessed portion.

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